1.0 Introduction

Software quality management is integrated into the software engineering processes required by LIR 308-00-05, making quality the responsibility of all software development practitioners and managers. To assure the development of quality software products, the requirements contained in the above LIR require tailored rigor for the software life-cycle processes and technical work products. To protect the integrity of the software, these requirements also require configuration controls over software, data, and technical documentation.

These software engineering requirements encompass all aspects of the software life cycle from initial planning through production and maintenance, and integrate the following basic life-cycle management concepts:
(1) implementation of software engineering best practices using a graded approach, and (2) process tailoring based on the level of effort, complexity, and degree of impact of the software product.

This LIG complements the requirements contained in LIR 308-00-05 and supports good business practices of project management, configuration management, records management, and security. This LIG does not contain actual guidance details but does identify the areas for which guidance is available and references the website where the information may be found.

At this time, not all guidance has been written; however, information for each area has been identified and provided. Guidance will be added to the website as it becomes available.

2.0 Purpose

This LIG identifies the web site where additional information such as possible implementation strategies, sample processes, frequently asked questions, and templates may be found. (http://isqm.lanl.gov)

3.0 Scope/Applicability

This guidance is recommended for use by software project leaders and developers.

4.0 Definitions

4.1 Terms

probable—Likely to occur or reasonably expected.

possible—Slight chance of occurrence or highly unlikely to occur.

not credible—Effectively zero probability of occurrence.

risk based graded approach—A process implemented to determine the depth

of detail required and the magnitude of resources expended for a particular management element to be tailored commensurate with the relative importance of the software project to the work, safety, health, environmental compliance, safeguards and security, programmatic importance, magnitude of the hazard, and financial impact.

software—A computer program or suite of programs, procedures or routines, having material value and usefulness that enable a computer system to process data.

Material value	Automates Laboratory operations and/or is delivered for use or evaluation by one or more Laboratory customers.
Usefulness	Is actively used today.
Enables	Provides tools for and allows access to.
Process	Performing data entry, data storage, data retrieval, calculations, or any other data manipulation.
Data	Information organized for analysis or computation.

Subject Matter Experts (SMEs)—For the purpose of this document, SMEs are personnel knowledgeable in software development, software engineering, or in the intended application domains for the software.

Software Project or Product—Development and/or acquisition of software for the intended use at LANL in the accomplishment of its mission or for delivery to Laboratory customers or collaborators.

5.0 Precautions and Limitations

None

6.0 Guidance Areas

Guidance documents and tools are available at http://isqm.lanl.gov in the following areas:

- Immediate Assistance to Get Started
- On-going Consulting Services
- Formal Training and Qualification
- Software Project Management Process
- Software Verification and Validation Process
- Software Quality Assurance Process
- Software Configuration Management Process
- Software Risk Management Process
- Software Requirements Management Process
- Software Product Engineering Process
- Software Project Tracking and Oversight Process
- Software Risk-Based Graded Approach

- Frequently Asked Questions
- Contacts

7.0 Documentation

None

8.0 References

8.1 Document Ownership The Office of Institutional Coordination (OIC) for this document shall be the Chief Information Officer (CIO).

8.2 Documents LIR 308-00-05, "Software Quality Management," Los Alamos National Laboratory

9.0 Attachments

None